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COMMON TIME

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COMMON TIME

By **DAVID GRINNELL**

Everything had been worked out in advance except the one factor that no one thought of—Garrard's subjective time-sense. And when a "day" to the ship is a "decade" to the passenger . . .

" . . . The days went slowly round and round, endless and uneventful as cycles in space. Time, and time-pieces! How many centuries did my hammock tell, as pendulum-like it swung to the ship's dull roll, and ticked the hours and ages."

—Melville: "Mardi."

DON'T move.

It was the first thought that came into Garrard's mind when he awoke, and perhaps it saved his life. He lay where he was, strapped against the padding, listening to the round hum of the engines. That in itself was wrong; he should be unable to hear the overdrive at all.

He thought to himself: Has it begun already?

Otherwise everything seemed normal. The DFC-3 had crossed over into interstellar velocity, and he was still alive, and the ship was still functioning. The ship should at this moment be travelling at 22.4 times the speed of light—a neat 4,157,000 miles per second.

Somehow Garrard did not doubt that it was. On both previous tries, the ships had whiffed away toward Alpha Centauri at the proper moment when the overdrive should have cut in; and the split-second of residual image after they had vanished, subjected to spectroscopy, showed a Doppler shift which tallied with the acceleration predicted for that moment by Haertel.

The trouble was not that Brown and Cellini hadn't gotten away in good order. It was simply that neither

of them had ever been heard from again.

Very slowly, he opened his eyes. His eyelids felt terrifically heavy. As far as he could judge from the pressure of the couch against his skin, the gravity was normal; nevertheless, moving his eyelids seemed almost an impossible job.

After long concentration, he got them fully open. The instrument-chassis was directly before him, extended over his diaphragm on its elbow-joint. Still without moving anything but his eyes—and those only with the utmost patience—he checked each of the meters. Velocity: 22.4 c. Operating temperature: normal. Ship-temperature: 37 deg. C. Air-pressure: 778 mm. Fuel: No. 1 tank full, No. 2 tank full, No. 3 tank full, No. 4 tank nine-tenths full. Gravity: 1 g. Calendar: stopped.

He looked at it closely, though his eyes seemed to focus very slowly, too. It was, of course, something more than a calendar—it was an all-purpose clock, designed to show him the passage of seconds, as well as of the ten months his trip was supposed to take to the double star. But there was no doubt about it: the second-hand was motionless.

That was the second abnormality. Garrard felt an impulse to get up and see if he could start the clock again. Perhaps the trouble had been temporary and safely in the past. Immediately there sounded in his head the injunction he had drilled into himself for a full month before the trip had begun—

Don't move!

Don't move until you know the situation as far as it can be known without moving. Whatever it was that had snatched Brown and Cellini irretrievably beyond human ken was potent, and totally beyond anticipation. They had both been excellent men, intelligent, resourceful, trained to the point of diminishing returns and not a micron beyond that point — the best men in the Project. Preparations for every knowable kind of trouble had been built into their ships, as they had been built into the DFC-3. Therefore, if there was something wrong, nevertheless, it would be something that might strike from some commonplace quarter—and strike only once.

He listened to the humming. It was even and placid, and not very loud, but it disturbed him deeply. The overdrive was supposed to be inaudible, and the tapes from the first unmanned test-vehicles had recorded no such hum. The noise did not appear to interfere with the overdrive's operation, or to indicate any failure in it. It was just an irrelevancy for which he could find no reason.

But the reason existed. Garrard did not intend to do so much as draw another breath until he found out what it was.

Incredibly, he realised for the first time that he had not in fact drawn one single breath since he had first come to. Though he felt not the slightest discomfort, the discovery called up so overwhelmingly a flash of panic that he very nearly sat bolt upright on the couch. Luckily—or so it seemed, after the panic had begun to ebb—the curious legarthy which had affected his eyelids appeared to involve his whole body, for the impulse was gone before he could summon the energy to answer it. And the panic, poignant though it had been for an instant, turned out to be wholly intellectual. In a moment, he was observing that his failure to breathe in no way discommoded him as far as he could tell—it was just there, waiting to be explained—

Or to kill him. But it hadn't yet.

Engines humming; eyelids heavy; breathing absent; calendar stopped. The four facts added up to nothing. The temptation to move something—even if it were only a big toe—was strong, but Garrard fought it back. He had been awake only a short while—half an hour at most—and already had noticed four abnormalities. There were bound to be more, anomalies more subtle than these four, but available to close examination before he had to move. Nor was there anything in particular that he had to do, aside from caring for his own wants: the Project, on the chance that Brown's and Cellini's failures to return had resulted from some tampering with the overdrive, had made everything in the DFC-3 subject only to the computer. In a very real sense, Garrard was just along for the ride. Only when the overdrive was off could he adjust —

Pock.

It was a soft, low-pitched noise, rather like a cork coming out of a wine-bottle. It seemed to have come just from the right of the control-chassis. He halted a sudden jerk of his head on the cushions toward it with a flat feat of will. Slowly, he moved his eyes in that direction.

He could see nothing that might have caused the sound. The ship's temperature-dial showed no change, which ruled out a heat-noise from differential contraction or expansion — the only possible explanation he could bring to mind.

He closed his eyes — a process which turned out to be just as difficult as opening them had been — and tried to visualise what the calendar had looked like when he had first come out of anaesthesia. After he got a clear and — he was almost sure — accurate picture, Garrard opened his eyes again.

The sound had been the calendar, advancing one second. It was now motionless again, apparently stopped.

He did not know how long it took the second-hand to make that jump, normally; the question had never

come up. Certainly the jump, when it came at the end of each second, had been too fast for the eye to follow.

Belatedly, he realised what all this cogitation was costing him in terms of essential information. The calendar had moved. Above all and before anything else, he must know exactly how long it took to move again —

He began to count, allowing an arbitrary five seconds lost. One-and-a-six, one-and-a-seven, one-and-a-eight—

Garrard had gotten only that far when he found himself plunged into Hell.

First, and utterly without reason, a sickening fear flooded swiftly through his veins, becoming more and more intense. His bowels began to knot, with infinite slowness. His whole body became a field of small, slow pulses — not so much shaking him as putting his limbs into contrary joggling motions, and making his skin ripple gently under his clothing. Against the hum another sound became audible, a nearly subsonic thunder which seemed to be inside his head. Still the fear mounted, and with it came the pain, and the tenesmus—a board-like stiffening of his muscles, particularly across his abdomen and his shoulders, but affecting his forearms almost as grievously. He felt himself beginning, very gradually, to double at the middle, a motion about which he could do precisely nothing — a terrifying kind of dynamic paralysis . . .

IT lasted for hours. At the height of it, Garrard's mind, even his very personality, was washed out utterly; he was only a vessel of horror. When some few trickles of reason began to return over that burning desert of reasonless emotion, he found that he was sitting up on the cushions, and that with one arm he had thrust the control chassis back on its elbow so that it no longer jutted over his body. His clothing was wet with perspiration, which stubbornly refused to evaporate or to cool him. And his lungs ached a little, although he could still detect no breathing.

What under God had happened? Was it this that had killed Brown and Cellini? For it would kill Garrard, too—of that he was sure, if it happened often. It would kill him even if it happened only twice more, if the next two such things followed the first one closely. At the very best it would make a slobbering idiot of him; and though the computer might bring Garrard and the ship back to Earth, it would not be able to tell the Project about this tornado of senseless fear.

The calendar said that the eternity in hell had taken three seconds. As he looked at it in academic indignation, it said Pock and condescended to make the total seizure four seconds long. With grim determination, Garrard began to count again.

He took care to establish the counting as an absolutely even, automatic process which would not stop at the back of his mind no matter what other problem he tackled along with it, or what emotional typhoons should interrupt him. Really compulsive counting cannot be stopped by anything—not the transports of love nor the agonies of empires. Garrard knew the dangers in deliberately setting up such a mechanism in his mind, but he also knew how desperately he needed to time that clock-tick. He was beginning to understand what had happened to him — but he needed exact measurement before he could put that understanding to use.

Of course there had been plenty of speculation on the possible effect of the overdrive on the subjective time of the pilot, but none of it had come to much. At any speed below the velocity of light, subjective and objective time were exactly the same as far as the pilot was concerned. For an observer on Earth, time aboard the ship would appear to be vastly slowed at near-light speeds; but for the pilot himself there would be no apparent change.

Since flight beyond the speed of light was impossible—although for slightly differing reasons—by both the current theories of relativity, neither theory had offered any clue as to

what would happen on board a trans-light ship. They would not allow that any such ship could even exist. The Haertel transformation, on which, in effect, the DFC-3 flew, was non-relativistic; it showed that the apparent elapsed time of a trans-light journey should be identical in ship-time, and in the time of observers at both ends of the trip.

But since ship and pilot were part of the same system, both covered by the same expression in Haertel's equation, it had never occurred to anyone that the pilot and the ship might keep different times. The notion was ridiculous.

One-and-a-sevenhundredone, one-and-a-sevenhundredtwo, one-and-a-sevenhundredthree, one-and-a-sevenhundredfour . . .

The ship was keeping ship-time, which was identical with observer-time. It would arrive at the Alpha Centauri system in ten months. But the pilot was keeping Garrard-time, and it was beginning to look as though he wasn't going to arrive at all.

It was impossible, but there it was. Something—almost certainly an unsuspected physiological side-effect of the overdrive field on human metabolism, an effect which naturally could not have been detected in the preliminary, robot-piloted tests of the overdrive—had speeded up Garrard's subjective apprehension of time, and had done a thorough job of it.

The second-hand began a slow, preliminary quivering as the calendar's innards began to apply power to it. Seventy-hundred-forty-one, seventy-hundred-forty-two, seventy-hundred-forty-three . . .

At the count of 7,058 the second-hand began the jump to the next graduation. It took it several apparent minutes to get across the tiny distance, and several more to come completely to rest. Later still, the sound came to him:

Pock.

In a fever of thought, but without any real physical agitation, his mind began to manipulate the figures. Since it took him longer to count an indivi-

dual number, the number became larger. The interval between the two calendar-ticks probably was closer to 7,200 seconds than to 7,058. Figuring backward brought him quickly to the equivalence he wanted:

One second in ship-time was two hours in Garrard-time.

Had he really been counting for what was, for him, two whole hours? There seemed to be no doubt about it. It looked like a long trip ahead.

Just how long it was going to be struck him with stunning force. Time had been slowed for him by a factor of 7200. He would get to Alpha Centauri in just 720,000 months.

Which was—

Six thousand years!

CHAPTER TWO

GARRARD sat motionless for a long time after that, the Nessus-shirt of warm sweat swathing him persistently, refusing even to cool. There was, after all, no hurry.

Six thousand years. There would be food and water and air for all that time, or for sixty or six hundred thousand years; the ship would synthesize his needs, as a matter of course, for as long as the fuel lasted, and the fuel bred itself. Even if Garrard ate a meal every three seconds of objective, or ship, time (which, he realized suddenly, he wouldn't be able to do, for it took the ship several seconds of objective-time to prepare and serve up a meal once it was ordered; he'd be lucky if he ate once a day, Garrard-time), there would be no reason to fear any shortage of supplies. That had been one of the earliest of the possibilities for disaster that the Project engineers had ruled out in the design of the DFC-3.

But nobody had thought to provide a mechanism which would indefinitely refurbish Garrard. After six thousand years, there would be nothing left of him but a faint film of dust on the DFC-3's dully-gleaming horizontal surfaces. His corpse might outlast him a while, since the ship itself was sterile—but eventually, he would be consumed by the bacteria which he car-

ried in his own digestive tract. He needed that bacteria to synthesize part of his B-vitamin needs while he lived, but it would consume him without compunction once he had ceased to be as complicated and delicately balanced a thing as a pilot—or as any other kind of life.

Garrard was, in short, to die before the DFC-3 had gotten fairly away from Sol; and when, after 12,000 apparent-years, the DFC-3 returned to Earth, not even his mummy would be still aboard.

The chill that went through him at that seemed almost unrelated to the way he thought he felt about the discovery; it lasted an enormously long time, and insofar as he could characterize it at all, it seemed to be a chill of urgency and excitement—not at all the kind of chill he should be feeling at a virtual death-sentence. Luckily it was not as intolerably violent as the last such emotional convulsion; and when it was over, two clock-ticks later, it left behind a residuum of doubt.

Suppose that this effect of time-stretching was only mental? The rest of his bodily-processes might still be keeping ship-time; Garrard had no immediate reason to believe otherwise. If so, he would be able to move about only on ship-time, too; it would take many apparent months to complete the simplest task.

But he would live, if that were the case. His mind would arrive at Alpha Centauri six thousand years older, and perhaps madder, than his body, but he would live.

If, on the other hand, his bodily movements were going to be as fast as his mental processes, he would have to be enormously careful. He would have to move slowly and exert as little force as possible. The normal human hand movement, in such a task as lifting a pencil, took the pencil from a state of rest to another state of rest by imparting to it an acceleration of about two feet per second per second—and, of course, decelerated it by the same amount. If Garrard were to attempt to impart to a two-

pound weight, which was keeping ship-time, an acceleration of 14,440 ft/sec² in his time, he'd have to exert a force of 900 pounds on it.

The point was not that it couldn't be done—but that it would take as much effort as pushing a stalled jeep. He'd never be able to lift that pencil with his forearm muscles alone; he'd have to put his back into the task.

And the human body wasn't engineered to maintain stresses of that magnitude indefinitely. Not even the most powerful professional weight-lifter is forced to show his prowess throughout every minute of every day.

Pock.

That was the calendar again; another second had gone by. Or another two hours. It had certainly seemed longer than a second, but less than two hours, too. Evidently subjective-time was an intensively recompllicated measure. Even in this world of micro-times—in which Garrard's mind, at least, seemed to be operating—he could make the lapses between calendar-ticks seem a little shorter by becoming actively interested in some problem or other. That would help, during the waking hours, but it would help only if the rest of his body were not keeping the same time as his mind. If it were not, then he would lead an incredibly active, but perhaps not intolerable mental life during the many centuries of his awake-time, and would be mercifully asleep for nearly as long.

BOTH problems—that of how much force he could exert with his body, and how long he could hope to be asleep in his mind—emerged simultaneously into the forefront of his consciousness while he still sat inertly on the hammock, their terms still much muddled together. After the single tick of the calendar, the ship—or the part of it that Garrard could see from here—settled back into complete rigidity. The sound of the engines, too, did not seem to vary in frequency or amplitude, at least as far as his ears could tell. He was still not breathing. Nothing moved, nothing changed.

It was the fact that he could still detect no motion of his diaphragm or his rib-cage that decided him at last. His body had to be keeping ship-time, otherwise he would have blacked out from oxygen-starvation long before now. That assumption explained, too, those two incredibly-prolonged, seemingly-sourceless saturnalias of emotion through which he had suffered: they had been nothing more nor less than the response of his endocrine glands to the purely intellectual reactions he had experienced earlier. He had discovered that he was not breathing, had felt a flash of panic and had tried to sit up. Long after his mind had forgotten those two impulses, they had inched their way from his brain down his nerves to the glands and muscles involved, and actual, physical panic had supervened. When that was over, he actually was sitting up, though the flood of adrenalin had prevented his noticing the motion as he had made it. The later chill—less violent, and apparently associated with the discovery that he might die long before the trip was completed—actually had been his body's response to a much earlier mental command—the abstract fever of interest he had felt while computing the time-differential had been responsible for it.

Obviously, he was going to have to be very careful with apparently cold and intellectual impulses of any kind—or he would pay for them later with a prolonged and agonising glandular reaction. Nevertheless, the discovery gave him considerable satisfaction, and Garrard allowed it free play; it certainly could not hurt him to feel pleased for a few hours, and the glandular pleasure might even prove helpful if it caught him at a moment of mental depression. Six thousand years, after all, provided a considerable number of opportunities for feeling down in the mouth; so it would be best to encourage all pleasure-moments, and let the after-reaction last as long as it might. It would be the instants of panic, of fear, of gloom which he would have to regulate sternly the moment they came into his mind; it would be those

which would otherwise plunge him into four, five, six, perhaps even ten Garrard-hours of emotional inferno.

Pock,

THERE now, that was very good: there had been two Garrard-hours which he had passed with virtually no difficulty of any kind, and without being especially conscious of their passage. If he could really settle down and become used to this kind of scheduling, the trip might not be as bad as he had at first feared. Sleep would take immense bites out of it; and during the waking periods he could put in one hell of a lot of creative thinking. During a single day of ship time, Garrard could get in more thinking than any philosopher of Earth could have managed during an entire lifetime. Garrard could, if he disciplined himself sufficiently, devote his mind for a century to running down the consequences of a single thought, down to the last detail, and still have millenia left to go on to the next thought. What panoplies of pure reason could he not have assembled by the time 6,000 years had gone by? With sufficient concentration, he might come up with the solution to the Problem of Evil between breakfast and dinner of a single ship's day, and in a ship's month might put his finger on the First Cause!

Pock.

Not that Garrard was sanguine enough to expect that he would remain logical or even sane throughout the trip. The vista was still grim, in much of its detail. But the opportunities, too, were there. He felt a momentary regret that it hadn't been Haertel, rather than himself, who had been given such an opportunity—

Pock.

—for the old man could certainly have made better use of it than Garrard could. The situation demanded someone trained in the highest rigors of mathematics to be put to the best conceivable use. Still and all Garrard began to feel —

Pock.

— that he would give a good account of himself, and it tickled him to realise that (as long as he held onto his essential sanity) he would return—

Pock.

—to Earth after ten Earth months with knowledge centuries advanced beyond anything —

Pock.

— that Haertel knew, or that anyone could know —

Pock.

—who had to work within a normal lifetime. Pck. The whole prospect tickled him. Pck. Even the clock-tick seemed more cheerful. Pck. He felt fairly safe now Pck in disregarding his drilled-in command Pck against moving Pck, since in any Pck even the Pck had already Pck moved Pck without Pck being Pck harmed Pck Pck Pck Pck Pck pckpckpckpckpckpckpck . . .

He yawned, stretched, and got up. It wouldn't do to be too pleased, after all. There were certainly many problems that still needed coping with such as how to keep the impulse toward getting a ship-time task performed going, while his higher centres were following the ramifications of some purely philosophical point. And besides . . .

And besides, he had just moved.

More than that: he had just performed a complicated manoeuvre with his body in normal time!

Before Garrard looked at the calendar itself, the message it had been ticking away at him had penetrated. While he had been enjoying the protracted, glandular backwash of his earlier feeling of satisfaction, he had failed to notice, at least consciously, that the calendar was accelerating.

Goodbye, vast ethical systems which would dwarf the Greeks. Goodbye, calculi aeons advanced beyond the spinor-calculus of Dirac. Goodbye, cosmologies by Garrard which would allot the Almighty a job as third-assistant-waterhoy in an n -dimensional backfield.

The micro-time in which he had been living had worn off, only a few objective-minutes after the ship had gone into overdrive and he had come out of the anaesthetic. The long intellectual agony, with its glandular counterpoint, had come to nothing. Garrad was now keeping shiptime.

GARRARD sat back down on the hammock, uncertain whether to be hitler or relieved. Neither emotion satisfied him in the end; he simply felt unsatisfied. Micro-time had been bad enough while it lasted; but now it was gone, and everything seemed normal. How could so transient a thing have killed Brown and Cellini? They were stable men, more stable, by his own private estimation, than Garrard himself. Yet he had come through it. Was there more to it than this?

And if there was—what, conceivably, could it be?

There was no answer. At his elbow, on the control-chassis which he had thrust aside during that first moment of infinitely protracted panic, the calendar continued to tick. The engine-noise was gone. His breath came and went in natural rhythm. He felt light and strong. The ship was quiet, calm, unchanging.

The calendar ticked faster and faster. It reached and passed the first hour, shiptime, of flight in overdrive.

Pock.

Garrard looked up in surprise. The familiar noise, this time, had been the hour-hand jumping one unit. The minute-hand was already sweeping past the past half-hour. The second-hand was whirling like a propellor—and while he watched it, it speeded up to complete invisibility —

Pock

Another hour. The half-hour already passed. Pock. Another hour. Pock. Another. Pock. Pock. Pock.

Pock, Pock, Pock, pck-pck-pck-pck-pckpckpckpck . . .

The hands of the calendar swirled toward invisibility as time ran away with Garrard. Yet the ship did not change. It stayed there, rigid, inviolate, invulnerable. When the date-tumblers reached a speed at which Garrard could no longer read them, he discovered that once more he could not move — and that, although his whole body seemed to be afflutter like that of a humming-bird, nothing coherent was coming to him through his senses. The room was dimming, becoming redder; or no, it was . . .

But he never saw the end of the process, never was allowed to look from the pinnacle of macro-time to ward which the Haertel overdrive was taking him.

Pseudo-death took him first.

CHAPTER THREE

THAT GARRARD did not die completely, and within a comparatively short time after the DFC-3 had gone into overdrive, was due to the purest of accidents; but Garrard did not know that. In fact, he knew nothing at all for an indefinite period, sitting rigid and staring, his metabolism slowed down to next to nothing, his mind almost utterly inactive. From time to time, a single wave of low-level metabolic activity passed through him—what an electrician might have termed a "maintenance turnover" — in response to the urgings of some occult survival-urge; but these were of so basic a nature as to reach his consciousness not at all. This was the pseudo-death.

Then, it was as if a single dim light had been turned on in the midst of an enormous cavern. Garrard was—no, not conscious again; but at least he was once more alive, and in the deep levels of his mind that fact registered. He began to breathe normally. An observer might have judged him to be asleep, as in fact he was. The sleep was very deep, but at least it was no longer the pseudo-death.

When the observer actually arrived, however, Garrard woke. He could make very little sense out of what he saw or felt even now; but one fact was clear: the overdrive was off—and with it the crazy alterations in time-rates—and there was strong light coming through one of the ports. The first leg of the trip was over. It had been these two changes in his environment which had restored him to life.

The thing (or things) which had restored him to consciousness, however, was—it was what? It made no sense. It was a construction, a rather fragile one, which completely surrounded his hammock. No, it wasn't a construction, but evidently something alive—a living being organised horizontally, that had arranged itself in a circle about him. No, it was a number of beings. Or a combination of all these things.

How it had gotten into the ship was a mystery, but there it was. Or there they were.

"How do you hear?" the creature said abruptly. Its voice, or their voices, came at equal volume from every point in the circle, but not from any particular point in it. Garrard could think of no reason why that should be unusual.

"I—" he said. "Or we—we hear with our ears. Here."

His answer, with its unintentionally-long chain of open vowel-sounds, rang ridiculously. He wondered why he was speaking such an odd language.

"We-they wooed to pitch you — yours thiswise," the creature said. With a thump, a book from the DFC-3's ample library fell to the deck beside the hammock. "We wooed there and there and there for a many. You are the being-Garrard. We-they are the clinesteron beademung, with all of love."

"With all of love," Garrard echoed. The beademung's use of the language they both were speaking was odd; but again Garrard could find no logical reason why the beademung's usage should be considered wrong.

"Are—are you—they from Alpha Centauri?" he said hesitantly.

"Yes, we hear the twin radiocoles, that show there beyond the gift-orifices. We-they pitched that the being-Garrard with most adoration these twins and had mind to them, soft and loud alike. How do you hear?"

This time the being-Garrard understood the question. "I hear Earth," he said. "But that is very soft, and does not show."

"Yes," said the beademung. "It is a harmony, not a first, as ours. The All-Devouring listens to lovers there, not on the radiocoles. Let me-mine pitch you-yours so to have mind of the rodalent beademung and other brothers and lovers, along the channel which is fragrant to the being-Garrard."

Garrard found that he understood the speech without difficulty. The thought occurred to him that to understand a language on its own terms—without having to put it back into English in one's own mind—is an ability that is won only with difficulty and long practice. Yet, instantly his mind said, "But it is English," which of course it was. The offer the clines-terton beademung had just made was enormously hearted, and he in turn was much minded and of love, to his own delighting as well as to the beademungen; that almost went without saying.

THERE WERE many matings of ships after that, and the being-Garrard pitched the harmonies of the beademungen, leaving his ship with the many gift orifices in harmonic for the All-Devouring to love while the beademungen made show of theirs.

He tried, also, to tell how he was out of love with the overdrive, which wooed only spaces and times and made featurelings. The rodalent beademung wooed the overdrive, but it did not pitch he-them.

Then the being-Garrard knew that all the time was devoured and he must hear Earth again.

"I pitch you-them to fullest love," he told the beademungen. "I shall adore the radiocoles of Alpha and Proxima Centauri, 'on Earth as it is in Heaven.' Now the overdrive my-other must woo and win me, and make me adore a featureling much like silence."

"But you will be pitched again," the clines-terton beademung said. "After you have adored Earth. You are much loved by Time, the All-Devouring. We-they shall wait for this othering."

Privately Garrard did not faith as much, but he said, "Yes, we-they will make a new wooing of the beademungen at some other radiant. With all of love."

On this the beademungen made and pitched adorations, and in the midst the overdrive cut in. The ship with the many gift orifices and the being-Garrard him-other saw the twin radiocoles sundered away.

Then, once more, came the pseudo-death.

CHAPTER FOUR

WHEN THE small candle lit in the endless cavern of Garrard's pseudo-dead mind, the DFC-3 was well inside the orbit of Uranus. Since the sun was still very small and distant, it made no spectacular display through the nearby port, and nothing called him from the post-death sleep for nearly two days.

The computers waited patiently for him. They were no longer immune to his control; he could now tool the ship back to Earth himself if he so desired. But the computers were also designed to take into account the fact that he might be truly dead by the time the DFC-3 got back. After giving him a solid week, during which time he did nothing but sleep, they took over again. Radio signals began to go out, tuned to a special channel.

An hour later, a very weak signal came back. It was only a directional signal, and it made no sound inside

the DFC-3—but it was sufficient to put the big ship in motion again.

It was that which woke Garrard. His conscious mind was still glazed over with the icy spume of the pseudo-death; and as far as he could see the interior of the cabin had not changed one whit, except for the book on the deck—

The book. The clinesterton beademung had dropped it there. But what under God was a clinesterton beademung? And what was he, Garrard, crying about? It didn't make sense. He remembered dimly some kind of experience out there by the Centauri twins—

—the twin radio-cats—

There was another one of those words. It seemed to have Greek roots, but he knew no Greek—and besides, why would Centaurians speak Greek?

He leaned forward and actuated the switch which would roll the shutter off the front port, actually a telescope with a translucent viewing-screen. It showed a few stars, and a faint nimbus off on one edge which might be the Sun. At about one o'clock on the screen, was a planet about the size of a pea which had tiny projections, like tea-cup handles, on each side. The DFC-3 hadn't passed Saturn on its way out; at that time it had been on the other side of the sun from the route the starship had had to follow. But the planet was certainly difficult to mistake.

Garrard was on his way home—and he was still alive and sane. Or was he still sane? These fantasies about Centaurians—which still seemed to have such a profound emotional effect upon him—did not argue very well for the stability of his mind.

But they were fading rapidly. When he discovered, clutching at the handiest fragments of the "memories," that the plural of beademung was beademungen, he stopped taking the problem seriously. Obviously a race of Centaurians who spoke Greek wouldn't also be forming weak German plurals. The whole business had obviously been thrown up by his unconscious.

But what had he found by the Centaurus stars?

There was no answer to that question but that incomprehensible garble about love, the All-Devouring, and beademungen. Possibly he had never seen the Centaurus stars at all, but had been lying here, cold as a mackerel, for the entire twenty months.

Or had it been 12,000 years? After the tricks the overdrive had played with time, there was no way to tell what the objective-date actually was. Frantically Garrard put the telescope into action. Where was the Earth? After 12,000 years—

The Earth was there. Which, he realised swiftly, proved nothing. The Earth had lasted for many millions of years; 12,000 years was nothing to a planet. The Moon was there, too; both were plainly visible on the far side of the Sun—but not too far to pick them out clearly, with the telescope at highest power. Garrard could even see a clear sun-highlight on the Atlantic Ocean, not far east of Greenland; evidently the computers were bringing the DFC-3 in on the Earth from about 23 deg. north of the plane of the ecliptic.

The Moon, too, had not changed. He could even see on its face the huge splash of white, mimicking the sun-highlight on Earth's ocean, which was the magnesium-hydroxide landing-beacon, which had been dusted over the Mare Vaporum in the earliest days of spaceflight, with a dark spot on its southern edge which could only be the crater Monilius.

But that again proved nothing. The Moon never changed. A film of dust laid down by modern man on its face would last for millenia—what, after all, existed on the Moon to blow it away? The Mare Vaporum beacon covered more than 4,000 square miles; age would not dim it, nor could man himself undo it—either accidentally, or on purpose—in anything under a century. When you dust an area that large on a world without atmosphere, it stays dusted.

He checked the stars against his charts. They hadn't moved; why

should they have, in only 12,000 years? The pointer-stars in the Dipper still pointed to Polaris. Draco, like a fantastic bit of tape, wound between the two Bears, and Cepheus and Cassiopeia, as it always had done. These constellations told him only that it was spring in the northern hemisphere of Earth.

But spring of what year?

THEN, suddenly, it occurred to Garrard that he had a method of finding the answer. The Moon causes tides in the Earth, and action and reaction are always equal and opposite. The Moon cannot move things on Earth without itself being affected—and that effect shows up in the moon's angular momentum. The Moon's distance from the Earth increases steadily by 0.6 inches every year. At the end of 12,000 years, it should be 600 feet farther away from the earth than it had been when Garrard left it.

Was it possible to measure? Garrard doubted it, but he got out his ephemeris and his dividers anyhow, and took pictures. While he worked, the Earth grew nearer. By the time he had finished his first calculation—which was indecisive, because it allowed a margin for error greater than the distances he was trying to check—Earth and Moon were close enough in the telescope to permit much more accurate measurements.

Which were, he realised wryly, quite unnecessary. The computer had brought the DFC-3 back, not to an observed sun or planet, but simply to a calculated point. That Earth and Moon would not be near that point when the DFC-3 returned was not an assumption that the computer could make. That the Earth was visible from here was already good and sufficient proof that no more time had elapsed than had been calculated for from the beginning.

This was hardly new to Garrard; it had simply been retired to the back of his mind. Actually he had been doing all this figuring for one reason, and one reason only: because deep

in his brain, set to work by himself, there was a mechanism that demanded counting. Long ago, while he was still trying to time the ship's calendar, he had initiated compulsive counting—and it appeared that he had been counting ever since. That had been one of the known dangers of deliberately starting such a mental mechanism; and now it was bearing fruit in these perfectly-useless astronomical exercises.

The insight was healing. He finished the figures roughly, and that unheard moron deep inside his brain stopped counting at last. It had been pawing its abacus for twenty months now, and Garrard imagined that it was as glad to be retired as he was to feel it go.

His radio squawked, and said, anxiously, "DFC-3, DFC-3. Garrard, do you hear me? Are you still alive? Everybody's going wild down here. Garrard, if you hear me, call us!"

It was Haertel's voice. Garrard closed the dividers so convulsively that one of the points nipped into the heel of his hand. "Haertel, I'm here. DFC-3 to the Project. This is Garrard." And then, without knowing quite why, he added: "With all of love."

HAERTEL, after all the hoopla was over, was more than interested in the time-effects. "It certainly enlarges the manifold in which I was working," he said. "But I think we can account for it in the transformation. Perhaps even factor it out, which would eliminate it as far as the pilot is concerned. We'll see, anyhow."

Garrard swirled his highball reflectively. In Haertel's cramped old office in the Project's administration-shack, he felt both strange and as old, as compressed, constricted. He said, "I don't think I'd do that, Adolph. I think it saved my life."

"How?"

"I told you that I seemed to die after a while. Since I got home, I've been reading; and I've discovered that the psychologists take far less stock in the individuality of the

human psyche than you and I do. You and I are physical scientists, so we think about the world as being all outside our skins—something which is to be observed, but which doesn't alter the essential I. But evidently, that old solipsistic position isn't quite true. Our very personalities, really, depend in large part upon all the things in our environment, large and small, that exist outside our skins. If by some means you could cut a human being off from every sense-impression that comes to him from outside, he would cease to exist as a personality within two or three minutes. Probably he would die."

"Unquote: Harry Stack Sullivan," Haertel said, dryly. "So?"

"So," Garrard said, "think of what a monotonous environment the inside dinary interplanetary flight, in such an environment, even the most hardened spaceman may go off his rocker now and then. You know the typical spaceman's psychosis as well as I do, I suppose. The man's personality goes rigid, just like his surroundings. Usually he recovers as soon he makes port, and makes contact with a more-or-less normal world again.

"But in the DFC-3, I was cut off from the world around me much more severely. I couldn't look outside the ports—I was in overdrive, and there was nothing to see. I couldn't communicate with home, because I was going faster than light. And then I found I couldn't move, too, for an enormous long while; and that even the instruments that are in constant change for the usual spaceman wouldn't be in motion for me. Even those were fixed.

"After the time-rate began to pick up, I found myself in an even more impossible box. The instruments moved, all right, but then they moved too fast for me to read them. The whole situation was now utterly rigid—and, in effect, I died. I froze as solid as the ship around me, and stayed that way as long as the overdrive was on."

"By that showing," Haertel said

dryly, "the time-effects were hardly your friends."

"But they were, Adolph. Look, Your engines act on subjective-time; they keep it varying along continuous curves — from far-too-slow to far-too-fast — and, I suppose, back down again. Now, this is a situation of continuous change. It wasn't marked enough, in the long run, to keep me out of pseudo-death; but it was sufficient to protect me from being obliterated altogether, which I think is what happened to Brown and Cellini. Those men knew that they could shut down the overdrive if they could just get to it, and they killed themselves trying. But I knew that I just had to sit and take it — and, by my great good luck, your sine-curve time-variation made it possible for me to survive."

"Ah, ah," Haertel said. "A point worth considering — though I doubt that it will make interstellar travel very popular!"

He dropped back into silence, his thin mouth pursed. Garrard took a grateful pull at his drink. At last Haertel said: "Why are you in trouble over these Centaureans? It seems to me that you have done a good job. It was nothing that you were a hero—any fool can be brave—but I see also that you thought, where Brown and Cellini evidently only reacted. Is there some secret about what you found when you reached those two stars?"

GARRARD said, "Yes, there is. But I've already told you what it is. When I came out of the pseudo-death, I was just a sort of plastic palimpsest upon which anybody could have made a mark. My own environment, my ordinary Earth environment, was a hell of a long way off. My present surroundings were nearly as rigid as they had ever been. When I met the Centaureans — if I did, and I'm not at all sure of that — they became the most important thing in my world, and my personality changed to accommodate and understand them. That was a change about which I couldn't do a thing.

"Possibly I did understand them. But the man who understood them wasn't the same man you're talking to now, Adolph. Now that I'm back on Earth, I don't understand that man. He even spoke English in a way that's gibberish to me. If I can't understand myself during that period — and I can't; I don't even believe that that man was the Garrard I know—what hope have I of telling you or the Project about the Cenaurians? They found me in a controlled environment, and they altered me by entering it. Now that they're gone, nothing comes through; I don't even understand why I think they spoke English!"

"Did they have a name for themselves?"

"Sure," Garrard said. "They were the beademungen."

"What did they look like?"

"I never saw them."

Haertel leaned forward. "Then—" "I hear them. I think," Garrard shrugged, and tasted his Scotch again. He was home, and on the whole he was pleased.

But in his malleable mind he heard someone say, On Earth, as it is in Heaven; and then, in another voice, which might also have been his own (why had he thought "him-other"?), It is later than you think.

"Adolph," he said, "is this all there is to it? Or are we going to go on with it from here? How long will it take to make a better starship, a DFC-4?"

"Many years," Haertel said, smiling kindly. "Don't be anxious, Garrard. You've come back, which is more than the others managed to do, and nobody will ask you to go out again. I really think that it's hardly likely that we'll

get another ship built during your lifetime; and even if we do, we'll be slow to launch it. We really have very little information about what kind of playground you found out there."

"I'll go," Garrard said. "I'm not afraid to go back—I'd like to go. Now that I know how the DFC-3 behaves, I could take it out again, bring you back proper maps, tapes, photos."

"Do you really think," Haertel said, his face suddenly serious, "that we could let the DFC-3 go out again? Garrard, we're going to take that ship apart practically molecule by molecule; that's preliminary to the building of any DFC-4. And no more can we let you go. I don't mean to be cruel, but has it occurred to you that this desire to go back may be the result of some kind of post-hypnotic suggestion? If so, the more badly you want to go back, the more dangerous to us all you may be. We are going to have to examine you just as thoroughly as we do the ship. If these beademungen wanted you to come back, they must have had a reason—and we have to know that reason"

Garrard nodded, but he knew that Haertel could see the slight movement of his eyebrows and the wrinkles forming in his forehead, the contractions of the small muscles which stop the flow of tears only to make grief patent on the rest of the face.

"In short," he said, "don't move."

Haertel looked politely puzzled. Garrard, however, could say nothing more. He had returned to humanity's common-time, and would never leave it again.

Not even, for all his dimly-remembered promise, with all there was left in him of love.

THE END

GENESIS

By H. BEAM PIPER

Was this ill-fated expedition the end of a proud, old race—or the beginning of a new one?

There are strange gaps in our records of the past. We find traces of man-like things—but, suddenly, man appears, far too much developed to be the “next step” in a well-linked chain of evolutionary evidence. Perhaps something like the events of this story furnishes the answer to the riddle.

ABOARD the ship there was neither day nor night; the hours slipped gently by, as vistas of star-gemmed blackness slid across the visiscreens. For the crew, time had some meaning—one watch on duty and two off. But for the thousand-odd colonists, the men and women who were to be the spearhead of migration to a new and friendlier planet, it had none. They slept, and played, worked at such tasks as they could invent, and slept again, while the huge ship followed her plotted trajectory.

Kalvar Dard, the army officer who would lead them in their new home, had as little to do as any of his followers. The ship's officers had all the responsibility for the voyage, and, for the first time in over five years, he had none at all. He was finding the unaccustomed idleness more wearying than the hectic work of loading the ship before the blastoff from Doorsha. He went over his landing and security plans again, and found no probable emergency unprepared for. Dard wandered about the ship, talking to groups of his colonists, and found morale even better than he had hoped. He spent hours staring into the forward visiscreens, watching the disc of Tareesh, the planet of his destination, grow larger and plainer ahead.

Now, with the voyage almost over,

he was in the cargo-hold just aft of the Number Seven bulkhead, with six girls to help him, checking construction material which would be needed immediately after landing. The stuff had all been checked two or three times before, but there was no harm in going over it again. It furnished an occupation to fill in the time; it gave Kalvar Dard an excuse for surrounding himself with half a dozen charming girls, and the girls seemed to enjoy being with him. There was tall blonde Olva, the electromagnetician; pert little Varnis, the machinist's helper; Kyna, the surgeon's-aide; dark-haired Analea; Dorita, the accountant; plump little Eldra, the armament technician. At the moment they were all sitting on or around the desk in the corner of the storeroom, going over the inventory when they were not just gabbling.

“Well, how about the rock-drill bits?” Dorita was asking earnestly, trying to stick to business. “Won't we need them almost as soon as we're off?”

“Yes, we'll have to dig temporary magazines for our explosives, small-arms and artillery ammunition, and storage pits for our fissionables and radioactives,” Kalvar Dard replied. “We'll have to have safe places for that stuff ready before it can be unloaded; and if we run into hard rock near the surface, we'll have to drill holes for blasting-shots.”

"The drilling machinery goes into one of those prefabricated sheds," Eldra considered. "Will there be room in it for all the bits, too?"

Kalvar Dard shrugged. "Maybe. If not, we'll cut poles and build racks for them outside. The bits are nono-steel; they can be stored in the open."

"If there are poles to cut," Olva added.

"I'm not worrying about that," Kalvar Dard replied. "We have a pretty fair idea of conditions on Tareesh; our astronomers have been making telescopic observations for the past fifteen centuries. There's a pretty big Arctic ice-cap, but it's been receding slowly, with a wide belt of what's believed to be open grassland to the south of it, and a belt of what's assumed to be evergreen forest south of that. We plan to land somewhere in the northern hemisphere, about the grassland-forest line. And since Tareesh is richer in water than Doorsha, you mustn't think of grassland in terms of our wire-grass plains, or forests in terms of our brush thickets. The vegetation should be much more luxuriant."

"If there's such a large polar ice cap, the summers ought to be fairly cool, and the winters cold," Varnis reasoned. "I'd think that would mean fur-bearing animals. Colonel, you'll have to shoot me something with a nice soft fur; I like furs."

Kalvar Dard chuckled. "Shoot you nothing, you can shoot your own furs. I've seen your carbine and pistol scores," he began.

THERE was a sudden suck of air, disturbing the papers on the desk. They all turned to see one of the ship's rocket-boat bays open; a young Air Force lieutenant named Seldar Glav, who would be staying on Tareesh with them to pilot their aircraft, emerged from an open airlock.

"Don't tell me you've been to Tareesh and back in that thing," Olva greeted him.

Seldar Glav grinned at her. "I could

have been, at that; we're only twenty or thirty planetary calibers away, now. We ought to be entering Tareeshan atmosphere by the middle of the next watch. I was only checking the boats, to make sure they'll be ready to launch . . . Colonel Kalvar, would you mind stepping over here? There's something I think you should look at, sir."

Kalvar Dard took one arm from around Analea's waist and lifted the other from Varnis' shoulder, sliding off the desk. He followed Glav into the boat-bay; as they went through the airlock, the cheerfulness left the young lieutenant's face.

"I didn't want to say anything in front of the girls, sir," he began, "but I've been checking boats to make sure we can make a quick getaway. Our meteor-security's gone out. The detectors are deader than the Fourth Dynasty, and the blasters won't synchronize . . . Did you hear a big thump, about a half an hour ago, Colonel?"

"Yes, I thought the ship's labour-crew was shifting heavy equipment in the hold aft of us. What was it, a meteor-hit?"

"It was. Just aft of Number Ten bulkhead. A meteor about the size of the nose of that rocket-boat."

Kalvar Dard whistled softly. "Great Gods of Power! The detectors must be dead, to pass up anything like that . . . Why wasn't a boat-stations call sent out?"

"Captain Vlazil was unwilling to risk starting a panic, sir," the Air Force officer replied. "Really, I'm exceeding my orders in mentioning it to you, but I thought you should know . . ."

Kalvar Dard swore. "It's a blasted pity Captain Vlazil didn't try thinking! Gold-braided quarter-wit! Maybe his crew might panic, but my people wouldn't . . . I'm going to call the control-room and have it out with him. By the Ten Gods . . .!"

HE ran through the airlock and back into the hold, starting toward the intercom-phone beside the desk. Before he could reach it, there

was another heavy jar, rocking the entire ship. He, and Seldar Glav, who had followed him out of the boat-bay, and the six girls, who had risen on hearing their commander's angry voice, were all tumbled into a heap. Dard surged to his feet, dragging Kyna up along with him; together, they helped the others to rise. The ship was suddenly filled with jangling bells, and the red danger-lights on the ceiling were flashing on and off.

"Attention! Attention!" the voice of some officer in the control-room blared out of the intercom-speaker. "The ship has just been hit by a large meteor! All compartments between bulkheads Twelve and Thirteen are sealed off. All persons between bulkheads Twelve and Thirteen, put on oxygen helmets and plug in at the nearest phone connection. Your air is leaking, and you can't get out, but if you put on oxygen equipment immediately, you'll be all right. We'll get you out as soon as we can, and in any case, we are only a few hours out of Tareeshan atmosphere. All persons in Compartment Twelve, put on . . ."

Kalvar Dard was swearing evilly. "That does it! That does it for good! . . . Anybody else in this compartment, below the living quarter level?"

"No, we're the only ones," Analea told him.

"The people above have their own boats; they can look after themselves. You girls, get in that boat, in there. Glav, you and I'll try to warn the people above . . ."

There was another jar, heavier than the one which had preceded it, throwing them all down again. As they rose, a new voice was shouting over the public-address system:

"Abandon ship! Abandon ship! The converters are backfiring and rocket-fuel is leaking back toward the engine-rooms! An explosion is imminent! Abandon ship, all hands!"

Kalvar Dard and Seldar Glav grabbed the girls and literally threw them through the hatch, into the rock-

et-boat. Dard pushed Glav in ahead of him, then jumped in. Before he had picked himself up, two or three of the girls were at the hatch, dogging the cover down.

"All right, Glav, blast off!" Dard ordered. "We've got to be at least a hundred miles from this ship when she blows, or we'll blow with her!"

"Don't I know!" Seldar Glav retorted over his shoulder, racing for the controls. "Grab hold of something everybody; I'm going to fire all jets at once!"

An instant later, while Kalvar Dard and the girls clung to stanchions and pieces of fixed furniture, the boat shot forward out of its housing. When Dard's head had cleared, it was in free flight.

"How was that?" Glav yelled. "Everybody all right?" He hesitated for a moment. "I think I blacked out for about ten seconds."

Kalvar Dard looked the girls over. Eldra was using a corner of her smock to stanch a nosebleed, and Olva had a bruise over one eye. Otherwise, everybody was in good shape.

"Wonder we didn't all black out permanently," he said. "Well, put on the visiscreens and let's see what's going on outside. Olva, get on the radio and try to see if anybody else got away."

"Set course for Tareesh?" Glav asked. "We haven't fuel enough to make it back to Doorsha."

"I was afraid of that," Dard nodded. "Tareesh it is; northern hemisphere, daylight side. Try to get about the edge of the temperate zone, as near water as you can . . ."

THEY were flung off their feet again, this time backward along the boat. As they picked themselves up, Seldar Glav was shaking his head sadly. "That was the ship going up," he said; "the blast must have caught us dead astern."

"All right." Kalvar Dard rubbed a bruised forehead. "Set course for Tareesh, then cut out the jets till we're ready to land. And get the screens on

somebody; I want to see what's happened."

The screens glowed; then full vision came on. The planet on which they would land loomed huge before them, its north pole toward them, and its single satellite on the port side. There was no sign of any rocket-boat in either side-screen, and the rear-view screen was a blur of yellow flame from the jets.

"Cut the jets, Glav," Dard repeated. "Didn't you hear me?"

"But I did, sir!" Seldar Glav indicated the firing-panel. Then he glanced at the rear-view screen. "The gods help us! It's yellow flame!; the jets are burning out!"

Kalvar Dard had not boasted idly when he had said that his people would not panic. All the girls went white, and one or two gave low cries of consternation, but that was all.

"What happens next?" Analea wanted to know. "Do we blow, too?"

"Yes, as soon as the fuel-line burns up to the tanks."

"Can you land on Tareesh before that?" Dard asked.

"I can try. How about the satellite? It's closer."

"It's also airless. Look at it and see for yourself," Kalvar Dard advised. "Not enough mass to hold an atmosphere."

Glav looked at the army officer with new respect. He had always been inclined to think of the Frontier Guards as a gang of scientifically illiterate dirk-and-pistol bravos. He fiddled for a while with instruments on the panel, an automatic computer figured the distance to the planet, the boat's velocity and the time needed for a landing.

"We have a chance, sir," he said. "I think I can set down in about thirty minutes; that should give us about ten minutes to get clear of the boat, before she blows up."

"All right; get busy, girls," Kalvar Dard said. "Grab everything we'll need. Arms and ammunition first; all of them you can find. After that, warm clothing, bedding, tools and food."

With that he jerked open one of the lockers and began pulling out weapons. He buckled on a pistol and dagger, and handed other weapon-belts to the girls behind him. He found two of the heavy big-game rifles, and several bandoliers of ammunition for them. He tossed out carbines, and boxes of carbine and pistol cartridges. He found two bomb-bags, each containing six light anti-personnel grenades and a big demolition-bomb. Glancing, now and then, at the forward screen, he caught glimpses of blue sky and green-tinted plains below.

"All right!" the pilot yelled. "We're coming in for a landing! A couple of you stand by to get the hatch open."

There was a jolt and all sense of movement stopped. A cloud of white smoke drifted past the screens. The girls got the hatch open; snatching up weapons and bedding-wrapped bundles they all scrambled up out of the boat.

There was fire outside. The boat had come down upon a grassy plain; now the grass was burning from the heat of the jets. One by one, they ran forward along the top of the rocket-boat, jumping down to the ground clear of the blaze. Then, with every atom of strength they possessed, they ran away from the doomed boat.

THE GROUND WAS ROUGH, and the grass high, impeding them. One of the girls tripped and fell; without pausing, two others pulled her to her feet, while another snatched up and slung the carbine she had dropped. Then, ahead, Kalvar Dard saw a deep gully, through which a little stream trickled.

They huddled together at the bottom of it, waiting for what seemed like a long while. Then a gentle tremor ran through the ground, and swelled to a sickening, heaving shock. A roar of almost palpable sound swept over them, and a flash of blue-white light dimmed the sun above. The sound, the shock, and the searing light did not pass away at once; they continued for seconds that seemed like

an eternity. Earth and stones pelted down around them; choking dust rose. Then the thunder and the earth-shock were over; above, incandescent vapours swirled, and darkened into an over-hanging pall of smoke and dust.

For a while, they crouched motionless, too stunned to speak. Then shaken nerves steadied and jarred brains cleared. They all rose weakly. Trickles of earth were still coming down from the sides of the gully, and the little stream, which had been clear and sparkling, was roiled with mud. Mechanically, Kalvar Dard brushed the dust from his clothes and looked to his weapons.

"That was just the fuel tank of a little Class-3 rocket-boat," he said. "I wonder what the explosion of the ship was like." He thought for a moment before continuing. "Glav, I think I know why our jets burned out. We were stern-on to the ship when she blew; the blast drove our flame right back through the jets."

"Do you think the explosion was observed from Doorsha?" Dorita inquired, more concerned about the practical aspects of the situation. "The ship, I mean. After all, we have no means of communication of our own."

"Oh, I shouldn't doubt it; there were observatories all around the planet watching our ship," Kalvar Dard said. "They probably know all about it, by now. But if any of you are thinking about the chances of rescue, forget it. We're stuck here."

"That's right. There isn't another human being within fifty million miles," Seldar Glav said. "And that was the first and only space-ship ever built. It took fifty years to build her, and even allowing twenty for research that wouldn't have to be duplicated, you can figure when we can expect another one."

"The answer to that one is, never. The ship blew up in space; fifty years' effort and fifteen hundred people gone, like that." Kalvar Dard snapped his fingers. "So now, they'll try to keep Doorsha habitable for a few more thousand years, by irrigation and

forget about immigrating to Tareesh."

"Well, maybe, in a hundred thousand years, our descendants will build a ship and go to Doorsha, then," Olva considered.

"Our descendants?" Eldra looked at her in surprise. "You mean, then . . .?"

KYNA CHUCKLED. "ELDRA, you are an awful innocent, about anything that doesn't have a breech-action or a recoil-mechanism," she said. "Why do you think the women on this expedition outnumbered the men seven to five, and why do you think there were so many obstetricians and pediatricians in the med. staff? We were sent out to put a human population on Tareesh, weren't we? Well, here we are."

"But . . . Aren't we ever going to . . .?" Varnis began. "Won't we ever see anybody else, or do anything but just live here, like animals, without machines or ground-cars or aircraft or houses or anything?" Then she began to sob bitterly.

Analea, who had been cleaning a carbine that had gotten covered with loose earth during the explosion, laid it down and went to Varnis, putting her arm around the other girl and comforting her. Kalvar Dard picked up the carbine she had laid down.

"Now, let's see," he began. "We have two heavy rifles, six carbines, and eight pistols, and these two bags of bombs. How much ammunition, counting what's in our belts, do we have?"

They took stock of their slender resources, even Varnis joining in the task, as he had hoped she would. There were over two thousand rounds for the pistols, better than fifteen hundred for the carbines, and four hundred for the two big-game guns. They had some spare clothing, mostly space-suit undergarments, enough bed-ropes, one hand-axe, two flashlights, a first-aid kit, and three atomic lighters. Each one had a combat-dagger. There was enough tinned food for about a week.

"We'll have to begin looking for

game and edible plants, right away," Glav considered. "I suppose there is game, of some sort; but our ammunition won't last forever."

"We'll have to make it last as long as we can; and we'll have to begin improvising weapons," Dard told him. "Throwing-spears, and throwing-axes. If we can find metal, or any recognizable ore that we can smelt, we'll use that; if not, we'll use chipped stone. Also, we can learn to make snares and traps, after we learn the habits of the animals on this planet. By the time the ammunition's gone, we ought to have learned to do without firearms."

"Think we ought to camp here?"

Kalvar Dard shook his head. "No wood here for fuel, and the blast will have scared away all the game. We'd better go upstream; if we go down, we'll find the water roiled with mud and unfit to drink. And if the game on this planet behave like the game-herds on the wastelands of Doorsha, they'll run for high ground when frightened."

Varnis rose from where she had been sitting. Having mastered her emotions, she was making a deliberate effort to show it.

"Let's make up packs out of this stuff," she suggested. "We can use the bedding and spare clothing to bundle up the food and ammunition."

They made up packs and slung them, then climbed out of the gully. Off to the left the grass was burning in a wide circle around the crater left by the explosion of the rocket-boat. Kalvar Dard, carrying one of the heavy rifles, took the lead. Beside and a little behind him, Analea walked, her carbine ready. Glav, with the other heavy rifle, brought up in the rear, with Olva covering for him, and between, the other girls walked, two and two.

Ahead, on the far horizon, was a distance-blue line of mountains. The little company turned their faces toward them and moved slowly away, across the empty sea of grass.

CHAPTER THREE

THEY HAD been walking, now, for five years. Kalvar Dard still led, the heavy rifle cradled in the crook of his left arm and a sack of bombs slung from his shoulder, his eyes forever shifting to right and left searching for hidden danger. The clothes in which he had jumped from the rocket-boat were patched and ragged; his shoes had been replaced by high laced buckskins of smoke-tanned hide. He was bearded now, and his hair had been roughly trimmed with the edge of his dagger.

Analea still walked beside him, but her carbine was slung, and she carried three spears with chipped flint heads; one heavy weapon, to be thrown by hand or used for stabbing, and two light javelins to be thrown with the aid of the hooked throwing-stick Glav had invented. Beside her trudged a four-year old boy, hers and Dard's, and on her back, in a fur-lined net bag, she carried their six-month-old baby.

In the rear, Glav still kept his place with the other big-game gun, and Olva walked beside him with carbine and spears; in front of them, their three-year-old daughter toddled. Between vanguard and rearguard, the rest of the party walked; Varnis, carrying her baby on her back, and Dorita, carrying a baby and leading two other children. The baby on her back had cost the life of Kyna in childbirth; one of the others had been left motherless when Eldra had been killed by the Hairy People.

That had been two years ago, in the winter when they had used one of their two demolition bombs to blast open a cavern in the mountains. It had been a hard winter; two children had died, then—Kyna's firstborn, and the little son of Kalvar Dard and Dorita. It had been their first encounter with the Hairy People, too.

Eldra had gone outside the cave with one of the skin water-bags, to fill it at the spring. It had been after sunset, but she had carried her pistol, and no one had thought of danger un-

til they heard the two quick shots and the scream. They had all rushed out to find four shaggy, manlike things tearing at Eldra with hands and teeth, another lying dead, and a sixth huddled at one side, clutching its abdomen and whimpering. There had been a quick flurry of shots that had felled all four of the assailants, and Seldar Glav had finished the wounded creature with his dagger, but Eldra was dead. They had built a cairn of stones over her body, as they had done over the bodies of the two children killed by the cold. But, after an examination to see what sort of things they were, they had tumbled the bodies of the Hairy People over the cliff. These had been too bestial to bury as befitted human dead, but too manlike to skin and eat as game.

Since then, they had often found traces of the Hairy People, and when they met with them, they killed them without mercy. These were great shambling parodies of humanity, long-armed, short-legged, twice as heavy as men, with close-set reddish eyes and heavy bone-crushing jaws. They may have been incredibly debased humans, or perhaps beasts on the very threshold of manhood. From what he had seen of conditions on this planet, Kalvan Dard suspected the latter to be the case. In a million or so years, they might evolve into something like humanity. Already, the Hairy ones had learned the use of fire, and of chipped crude stone implements — mostly heavy triangular choppers to be used in the hand, without helves.

Twice, after that night, the Hairy People had attacked them—once while they were on the march, and once in camp. Both assaults had been beaten off without loss to themselves, but at cost of precious ammunition. Once they had caught a band of ten of them swimming a river on logs; they had picked them all off from the bank with their carbines. Once, when Kalvar Dard and Analea had been scouting alone, they had come upon a dozen of them huddled around a fire and had wiped them out with a single grenade. Once, a large band of Hairy

People hunted them for two days, but only twice had they come close, and both times, a single shot had sent them all scampering. That had been after the bombing of the group around the fire. Dard was convinced that the heings possessed the rudiments of a language, enough to communicate a few simple ideas, such as the fact that this little tribe of aliens were dangerous in the extreme.

THERE WERE HAIRY People about now; for the past five days, moving northward through the forest to the open grasslands, the people of Kalvar Dard had found traces of them. Now, as they came out among the seedling growth at the edge of the open plains, everybody was on the alert.

They emerged from the big trees and stopped among the young growth, looking out into the open country. About a mile away, a herd of game was grazing slowly westward. In the distance, they looked like the little horse-like things, no higher than a man's waist and heavily maned and bearded, that had been one of their most important sources of meat. For the ten thousandth time, Dard wished as he strained his eyes, that somebody had thought to secure a pair of binoculars when they had abandoned the rocket-boat. He studied the grazing herd for a long time.

The seedling pines extended almost to the game-herd and would offer concealment for the approach, but the animals were grazing into the wind, and their scent was much keener than their vision. This would preclude one of their favourite hunting techniques, that of lurking in the high grass ahead of the quarry. It had rained heavily in the past few days, and the undermat of dead grass was soaked making a fire-hunt impossible. Kalvar Dard knew that he could stalk to within easy carbine-shot, but he was unwilling to use cartridges on game; and in view of the proximity of Hairy People, he did not want to divide his band for a drive hunt.

"What's the scheme?" Analea asked him, realising the problem as well as he did. "Do we try to take them from behind?"

"We'll take them from an angle," he decided. "We'll start from here and work in, closing on them at the rear of the herd. Unless the wind shifts on us, we ought to get within spear-cast. You and I will use the spears; Varnis can come along and cover for us with a carbine. Glav, you and Olva and Dorita stay here with the children and the packs. Keep a sharp lookout: Hairy People around, somewhere." He unslung his rifle and exchanged it for Olva's spears. "We can only eat about two of them before the meat begins to spoil, but kill all you can," he told Analea, "we need the skins."

Then he and the two girls began their slow, cautious stalk. As long as the grassland was dotted with young trees, they walked upright, making good time, but the last five hundred yards they had to crawl, stopping often to check the wind, while the horse-herd drifted slowly by. Then they were directly behind the herd, with the wind in their faces, and they advanced more rapidly.

"Close enough?" Dard whispered to Analea.

"Yes; I'm taking the one that's lagging a little behind."

"I'm taking the one on the left of it." Kalvar Dard fitted a javelin to the hook of his throwing-stick. "Ready? Now!"

He leaped to his feet, drawing back his right arm and hurling it, the throwing-stick giving added velocity to the spear. Beside him, he was conscious of Analea rising and propelling her spear. His missile caught the little bearded pony in the chest; it stumbled and fell forward to its front knees. He snatched another light spear, set it on the hook of the stick and darted it at another horse, which reared, biting at the spear with its teeth. Grabbing the heavy stabbing-spear, he ran forward, finishing it off with a heart-thrust. As he did, Varnis slung her carbine, snatched a stone-headed

throwing axe from her belt, and knocked down another horse, then ran forward with her dagger to finish it.

By this time, the herd alarmed, had stampeded and was galloping away, leaving the dead and dying behind. He and Analea had each killed two; with the one Varnis had knocked down, that made five. Using his dagger, he finished off one that was still kicking on the ground, and then began pulling out the throwing-spears. The girls, shouting in unison, were announcing the successful completion of the hunt; Glav, Olva and Dorita were coming forward with the children.

IT was sunset by the time they had finished the work of skinning and cutting up the horses and had carried the hide-wrapped bundles of meat to the little brook where they had intended camping. There was firewood to be gathered, and the meal to be cooked, and they were all tired.

"We can't do this very often, any more," Kalvar Dard told them, "but we might as well to-night. Don't bother rubbing sticks for fire; I'll use the lighter."

He got it from a pouch on his belt—a small, gold-plated, atomic lighter, bearing the crest of his old regiment of the Frontier Guards. It was the last one they had, in working order. Piling a handful of dry splinters under the firewood, he held the lighter to it, pressed the activator and watched the fire eat into the wood.

The greatest achievement of man's civilisation, the mastery of the basic, cosmic, power of the atom—being used to kindle a fire of natural fuel, to cook unseasoned meat killed with stone-tipped spears. Dard looked sadly at the twinkling little gadget then slipped it back into its pouch. Soon it would be worn out, like the other two, and then they would gain fire only by rubbing dry sticks, or hacking sparks from bits of flint or pyrites. Soon, too the last cartridge would be fired, and then they were perforce depend for

protection, as they were already doing for food, upon their spears.

And they were so helpless. Six adults, burdened with seven little children, all of them requiring immediate care and watchfulness. If the cartridges could be made to last until they were old enough to fend for themselves . . . If they could avoid collisions with the Hairy People . . . Some day, they would be numerous enough for effective mutual protection and support; some day, the ratio of helpless children to able adults would redress itself. Until then, all that they could do would be to survive; day after day, they must follow the game-herds.

CHAPTER FOUR

FOR twenty years now, they had been following the game. Winters had come, with driving snow, forcing horses and deer into the woods, and the little band of humans to the protection of mountain caves. Springtime followed, with fresh grass on the plains and plenty of meat for the people of Kalvar Dard. Autumns followed summers, with fire-hunts, and the smoking and curing of meat and hides. Winters followed autumns and springtimes came again, and thus until the twentieth year after the landing of the rocket-boat.

Kalvar Dard still walked in the lead, his hair and beard flecked with grey, but he no longer carried the heavy rifle; the last cartridge for that had been fired long ago. He carried the hand-axe, fitted with a long helve, and a spear with a steel head that had been worked painfully from the receiver of a useless carbine. He still had his pistol, with eight cartridges in the magazine, and his dagger, and the bomb-bag, containing the big demolition bomb and one grenade. The last shred of clothing from the ship was gone now; he was clad in a sleeveless tunic of skin and horse-hide buckskins.

Analea no longer walked beside him; eight years before, she had broken her back in a fall. It had been im-

possible to move her, and she stabbed herself with her dagger to save a cartridge. Seldar Glav had broken through the ice while crossing a river, and had lost his rifle; the next day he died of the chill he had taken. Olva had been killed by the Hairy People, the night they had attacked the camp, when Varnis' child had been killed.

They had beaten off that attack, shot or speared ten of the huge sub-men, and the next morning they buried their dead after their custom, under cairns of stone. Varnis had watched the burial of her child with blank, uncomprehending eyes, then she had turned to Kalvar Dard and said something that had horrified him more than any wild outburst of grief could have.

"Come on, Dard; what are we doing this for? You promised you'd take us to Tareesh, where we'd have good houses, and machines, and all sorts of lovely things to eat and wear. I don't like this place, Dard; I want to go to Tareesh."

From that day on, she had wandered in merciful darkness. She had not been idiotic, or raving mad; she had just escaped from a reality that she could no longer bear.

Varnis, lost in her dream-world, and Dorita, hard-faced and haggard, were the only ones left, beside Kalvar Dard, of the original eight. But the band had grown meanwhile to more than fifteen. In the rear, in Seldar Glav's old place, the son of Kalvar Dard and Analea walked. Like his father, he wore a pistol, for which he had six rounds, and a dagger, and in his hand he carried a stone-headed killing-maul with a three-foot handle which he had made for himself. The woman who walked beside him and carried his spears was the daughter of Glav and Olva; in a net-bag on her back she carried their infant child. The first Tareeshan born of Tareeshan parents; Kalvar Dard often looked at his little grandchild during nights in camp and days on the trail, seeing, in that tiny fur-swaddled morsel of humanity, the meaning and purpose of all that he did.

This tiny threatened beachhead of humanity was expanding, gaining strength. Long after man had died out on Doorsha and the dying planet itself had become an arid waste, the progeny of this little band would continue to grow and to dominate the younger planet, nearer the sun. Some day, an even mightier civilisation than the one he had left would rise here . . .

ALL day the trail had wound upward into the mountains. Great cliffs loomed above them, and little streams spumed and dashed in rocky gorges below. All day, the Hairy People had followed, fearful to approach too close, unwilling to allow their enemies to escape. It had started when they had rushed the camp, at daybreak; they had been beaten off, at cost of almost all the ammunition, and the death of one child. No sooner had the tribe of Kalvar Dard taken the trail, however, than they had been pressing after them. Dard had determined to cross the mountains, and had led his people up a game-trail, leading toward the notch of a pass high against the skyline.

The shaggy ape-things seemed to have divined his purpose. Once or twice, he had seen hairy brown shapes dodging among the rocks and stunted trees to the left. They were trying to reach the pass ahead of him. Well, if they did . . . He made a quick mental survey of his resources. His pistol, and his son's, and Dorita's, with eight, and six, and seven rounds. One grenade, and the big demolition bomb, too powerful to be thrown by hand, but which could be set for delayed explosion and dropped over a cliff or left behind to explode among pursuers. Five steel daggers, and plenty of spears and slings and axes. Himself, his son and his son's woman, Dorita, and four or five of the older boys and girls, who would make effective front-line fighters. And Varnis, who might come out of her private dream-world long enough to give account for herself, and even the tiniest of the walking children could throw stones or light

spears. Yes, they could force the pass, if the Hairy People reached it ahead of them, and then seal it shut with the heavy bomb. What lay on the other side, he did not know; he wondered how much game there would be, and if there were Hairy People on that side, too.

Two shots slammed quickly behind him. He dropped his axe and took a two-hand grip on his stabbing-spear as he turned. His son was hurrying forward, his pistol drawn, glancing behind as he came.

"Hairy People. Four," he reported. "I shot two; she threw a spear and killed another. The other ran."

The daughter of Seldar Glav and Olva nodded in agreement.

"I had no time to throw again," she said, "and Bo-Bo would not shoot the one that ran."

Kalvar Dard's son, who had no other name than the one his mother had called him as a child, defended himself. "He was running away. It is the rule: use bullets only to save life, where a spear will not serve."

Kalvar Dard nodded. "You did right, son," he said, taking out his own pistol and removing the magazine, from which he extracted two cartridges. "Load these into your pistol; four rounds aren't enough. Now we each have six. Go back to the rear, keep the little ones moving, and don't let Varnis get behind."

"That is right. We must all look out for Varnis, and take care of her," the boy recited obediently. "That is the rule."

He dropped to the rear. Kalvar Dard holstered his pistol and picked up his axe, and the column moved forward again. They were following a ledge, now; on the left, there was a sheer drop of several hundred feet, and on the right a cliff rose above them, growing higher and steeper as the trail slanted upward. Dard was worried about the ledge, if it came to an end, they would all be trapped. No one would escape. He suddenly felt old and unutterably weary. It was a frightful weight that he bore—responsibility for an entire race.

SUDDENLY behind him, Dorita fired her pistol upward, Dard sprang forward—there was no room for him to jump aside—and drew his pistol. The boy, Bo-bo, was trying to find a target from his position in the rear. Then Dard saw the two Hairy People; the boy fired and the stone fell, all at once.

It was a heavy stone, half as big as a man's torso, and it almost missed Kalvar Dard. If it had hit him directly, it would have killed him instantly, mashing him to a bloody pulp; as it was, he was knocked flat, the stone pinning his legs.

At Bo-bo's shot, a hairy body plummeted down, to hit the ledge. Bo-bo's woman instantly ran it through with one of her spears. The other ape-thing, the one Dorita had shot, was still clinging to a rock above. Two of the children scampered up to it and speared it repeatedly, screaming like little furies. Dorita and one of the older girls got the rock off Kalvar Dard's legs and tried to help him to his feet, but he collapsed, unable to stand. Both his legs were broken.

This was it, he thought, sinking back. "Dorita, I want you to run ahead and see what the trail's like," he said. "See if the ledge is passable. And find a place, not too far ahead, where we can block the trail by exploding that demolition bomb. It has to be close enough for a couple of you to carry or drag me and get me there in one piece."

"What are you going to do?"

"What do you think?" he retorted. "I have both legs broken. You can't carry me with you; if you try it, they'll catch us and kill us all. I'll have to stay behind; I'll block the trail behind you, and get as many of them as I can, while I'm at it. Now, run along and do as I said."

She nodded. "I'll be back as soon as I can," she agreed.

The others were crowding around Dard. Bo-bo bent over him, perplexed and worried. "What are you going to do, father?" he asked. "You are hurt. Are you going to go away

and leave us, as mother did when she was hurt?"

"Yes, son; I'll have to. You carry me on ahead a little, when Dorita gets back, and leave me where she shows you to. I'm going to stay behind and block the trail, and kill a few Hairy People. I'll use the big bomb."

"The big bomb? The one nobody dare throw?" The boy looked at his father in wonder.

"That's right. Now, when you leave me, take the others and get away as fast as you can. Don't stop till you're up to the pass. Take my pistol and dagger, and the axe and the big spear, and take the little bomb, too. Take everything I have, only leave the big bomb with me. I'll need that."

Dorita rejoined them. "There's a waterfall ahead. We can get around it, and up to the pass. That way's clear and easy; if you'll put off the bomb just this side of it, you'll start a rock-slide that'll block everything."

"All right. Pick me up, a couple of you. Don't take hold of me below the knees. And hurry."

A HAIRY SHAPE APPEARED on the ledge below them; one of the older boys used his throwing-stick to drive a javelin into it. Two of the girls picked up Dard; Bo-bo and his woman gathered up the big spear and the axe and the bomb-bag.

They hurried forward, picking their way along the top of a talus of rubble at the foot of the cliff, and came to where the stream gushed out of a narrow gorge. The air was wet with spray there, and loud with the roar of the waterfall. Kalvar Dard looked around; Dorita had chosen the spot well. Not even a sure-footed mountain goat could make the ascent, once that gorge was blocked.

"All right; put me down here," he directed. "Bo-bo, take my belt, and give me the big bomb. You have one light grenade; know how to use it?"

"Of course, you have often showed me. I turn the top, and then press in

the little thing on the side, and hold it in till I throw. I throw at least a spear-cast, and drop to the ground or behind something."

"That's right. And use it only in greatest danger, to save everybody. Spare your cartridges; use them only to save life. And save everything of metal, no matter how small."

"Yes. Those are the rules. I will follow them, and so will the others. And we will always take care of Varnis."

"Well, goodbye, son." He gripped the boy's hand. "Now get everybody out of here; don't stop till you're at the pass."

"You're not staying behind!" Varnis cried. "Dard, you promised us! I remember, when we were all in the ship together—you and I and Analea and Olva and Dorita and Eldra and, oh, what was that other girl's name, Kyna! And we were all having such a nice time, and you were telling us how we'd all come to Tareesh and we were having such fun talking about it . . ."

"That's right, Varnis," he agreed. "And so I will. I have something to do, here, but I'll meet you on top of the mountain, after I'm through, and in the morning we'll all go to Tareesh."

She smiled—the gentle, childlike smile of the harmlessly mad — and turned away. The son of Kalvar Dard made sure that she and all the children were on the way, and then he, too, turned and followed them leaving Dard alone.

Alone, with a bomb and a task. He'd borne that task for twenty years now; in a few minutes, it would be ended, with an instant's searing heat. He tried not to be too glad; there were so many things he might have done, if he had tried harder. Metals, for instance. Somewhere there surely must be ores which they could have smelted, but he had never found them. And he might have tried catching some of the little horses they hunted for food, to break and train to bear burdens. And the alphabet—why

hadn't he taught it to Bo-Bo and the daughter of Seldar Glav, and laid on them an obligation to teach the others? And the grass-seeds they used for making flour sometimes; they should have planted fields of the better kinds, and patches of edible roots, and returned at the proper time to harvest them. There were so many things, things that none of those young savages or their children would think of in ten thousand years . . .

Something was moving among the rocks, a hundred yards away. He straightened, as much as his broken legs would permit, and watched. Yes, there was one of them, and there was another, and another. One rose from behind a rock and came forward at a shambling run, making bestial sounds. Then two more lumbered into sight, and in a moment the ravine was alive with them. They were almost upon him when Kalvar Dard pressed in the thumbpiece of the bomb; they were clutching at him when he released it. He felt a slight jar . . .

WHEN they reached the pass, they all stopped as the son of Kalvar Dard turned and looked back. Dorita stood beside him, looking toward the waterfall, too; she also knew what was about to happen. The others merely gaped in blank incomprehension, or grasped their weapons, thinking that the enemy was pressing close behind and that they were making a stand here. A few of the smaller boys and girls began picking up stones.

Then a tiny pin-point of brilliance winked, just below where the snow-fed stream vanished into the gorge. That was all, for an instant, and then a great fire-shot cloud swirled upward, hundreds of feet into the air; there was a crash, louder than any sound any of them except Dorita and Varnis had ever heard before.

"He did it!" Dorita said softly.

"Yes, he did it. My father was a brave man," Bo-Bo replied. "We are safe, now."

Varnis, shocked by the explosion, turned and stared at him, and then

she laughed happily. "Why, there you are, Dard!" she exclaimed. "I was wondering where you'd gone. What did you do, after we left?"

"What do you mean?" The boy was puzzled, not knowing how much he looked like his father, when his father had been an officer of the Frontier Guards, twenty years before.

His puzzlement worried Varnis vaguely. "You . . . You are Dard, aren't you?" she asked. "But that's silly; of course you're Dard! Who else could you be?"

"Yes, I am Dard," the boy said, remembering that it was the rule for everybody to be kind to Varnis and to pretend to agree with her. Then another thought struck him. His shoulders straightened. "Yes, I am Dard, son of Dard," he told them all. "I lead, now. Does anybody say no?"

He shifted his axe and spear to his left hand and laid his right hand on the butt of his pistol, looking sternly at Dorita. If any of them tried to dispute his claim, it would be she. But instead, she gave him the nearest thing to a real smile that had crossed her face in years.

"You are Dard," she told him; "you lead us, now."

"But of course Dard leads! Hasn't he always led us?" Varnis wanted to know. "Then what's all the argument about? -And to-morrow he's going to take us to Tareesh, and we'll have houses and ground-cars and aircraft and gardens and lights, and all the lovely things we want. Aren't you, Dard?"

"Yes, Varnis; I will take you all to Tareesh, to all the wonderful things," Dard, son of Dard, promised, for such was the rule about Varnis.

Then he looked down from the pass into the country beyond. There were lower mountains, below, and foothills, and a wide blue valley, and, beyond that, distant peaks reared jag-

gedly against the sky. He pointed with his father's axe.

"We go down that way," he said.

SO they went, down, and on, and on, and on. The last cartridge was fired; the last sliver of Doorsham metal wore out or rusted away. By then, however, they had learned to make chipped stone, and bone, and reindeer-horn, serve their needs. Century after century, millenium after millenium, they followed the game-herds from birth to death, and birth replenished their numbers faster than death depleted. Bands grew in numbers and split; young men rebelled against the rule of the old and took their women and children elsewhere.

They hunted down the hairy Neanderthalers, and exterminated them ruthlessly, the origin of their implacable hatred lost in legend. All that they remembered, in the misty, confused way that one remembers a dream, was that there had once been a time of happiness and plenty, and that there was a goal to which they would some day attain. They left the mountains—were they the Caucasus? The Alps? The Pamirs? — and spread outward, conquering as they went.

We find their bones, and their stone weapons, and their crude paintings, in the caves of Cro-Magnon and Grimaldi and Altimira and Mas-d'Azil; the deep layers of horse and reindeer and mammoth bones at their feasting place at Solutre. We wonder how and whence a race so like our own came into a world of brutish sub-humans.

Just as we wonder, too, at the network of canals which radiate from the polar caps of our sister planet, and speculate on the possibility that they were the work of hands like our own. And we concoct elaborate jokes about the "Men From Mars" — ourselves.

LAST STAND OF A SPACE GRENADIER

By **DAVID GRINNELL**

Offhand, you'd say this was a real oldtime space-opera, from the title, wouldn't you? Well, you can trust Mr. Grinnell not to make such an obvious follow-through. In a sense, you might call the story space-opera, true—but on the other hand . . .

I HAVE just finished disconnecting my television set. It's a fine 30in screen job, this year's model, and in perfect condition. If you want to buy it, I will sell it for far below what it would cost you anywhere. I am not interested in owning one anymore, and if you do not have any children in your house, you can buy my set at a real bargain.

I have a fourteen-year-old boy of my own. He used to enjoy the television shows, particularly a certain science-fiction adventure serial, but he will have to confine his entertainment to reading now. He doesn't mind too much, because he is a voracious reader of science-fiction magazines, too.

Several days ago, I was sitting at home reading a book and my boy Edward was sitting at the cleared dinner table hunched over a pulp magazine. Suddenly he gave a snort, said, "Huh!" and sort of looked up with an odd grin on his face.

"What's the joke?" I asked, out of curiosity. I am a reporter for the Daily Argus and by nature I always ask questions. Ed just grinned, came over with the magazine and showed

it to me. It was a copy of a popular science-fiction monthly, and he had folded it back to the department called the Fantasy Legion.

The Fantasy Legion is one of those coupon-clipping clubs that some of these pulps run. You clip a coupon and they send you a colourful membership card, and perhaps a lapel-pin. Usually it ends there, but science-fiction fans are different—as I know from having gone in my house. These fans write letters and get to meet each other and really make branches and clubs out of these organisations. Thus the Fantasy Legion actually has about two dozen clubs that meet and correspond around the country, and it is just as serious about itself as the Boy Scouts.

What made Ed smirk was a little item that the Commanding Secretary (the editor, you realise) of the Fantasy Legion had printed at the head of his column that month. It seems that he had to expel two members "for attempting to undermine the Legion on behalf of a competing organisation." This is taking a club like that real seriously.

"Do you know these two boys?" I asked Ed.

"Sure," he said. "Joe and Frank are nice guys. They're active members of the Space Grenadiers, and they were doing just what the editor said. They were joining up in the Fantasy Legion clubs and trying to talk the members into making them over into Space Grenadier branches. In fact they joined my club, right here in this city."

"They're nice, you say? What's nice about trying to undermine your own club?" I asked.

Ed just laughed. "Aw, pop, it's all in fun. Joe and Frank just take themselves too seriously. Most of the guys belong to all the organisations at the same time. I do, myself." He reached into his pocket and pulled out an assortment of papers and junk, from which he separated three or four cards. I saw that he was a full-fledged legionnaire of the Fantasy Legion; a cadet of the Space Grenadiers; a patrolman of the Cosmic Guard; and a fellow of the National Fantasy Fellowship.

I turned over the Space Grenadiers card. It was issued by the Space Grenadiers T.V. Hour, sponsored every night between 5.30 and 6 p.m. by a well-known cereal company. The bearer pledged himself to abide by the code of the Grenadiers—which seemed to be a plagiarism of the Boy Scout code with cosmic trappings—and also the bearer agreed to follow the programme daily.

"Joe and Frank have organised a real branch of this club, and they were working very hard to get new members. I guess the Fantasy Legion got worried about it. But they're really nice guys; I haven't joined their club, but they belong to mine—or did until this happened."

I returned the cards to him and went back to my book. However, I

am a reporter, and when I went into the office next day, I took my son's magazine along and wrote a little story about it, taking a facetious air and making it all out to be a funny item. The editor liked it, put a gag leader on it and it found a small spot on the third page. Something like "Treason Runs Rampant in Interplanetary Circles!" You know.

THAT would have been that, except that a day or so later, I was down at the city hospital when a boy was brought in suffering from amnesia. He was a nice-looking fifteen-year-old, well-dressed, but with an apparent total loss of memory. They identified him by a card in his wallet. The name on it was Frank Wainer, and the card was a Space Grenadiers membership-card, certifying the bearer as a full-fledged Grenadier. I remembered his name as that of one of the two boys involved in the Fantasy Legion expulsion.

I saw the boy and it was puzzling. There were no bruises on him, nothing to indicate accident. His parents were there, but he simply did not recognise them. He sat quietly, resigned, and unresponsive. I talked to his folks, and they said he had been acting worried the past month or so; he had been restless nights, but last night he had slept soundly. He had seemed dazed when he woke up, started to school, and had been found on the streets a few hours later in this condition.

I got the editor to assign me to this case, because I had an inside track, apparently. I got my son to give me the address of the other chap, Joe Aitkens, who had been kicked out of the Fantasy Legion, and I showed up at the Aitkens' house about half past three. I found him home, as I figur-

ed, for his school hours were the same as my son's. His parents, fortunately, were not at home; I didn't want to get the boy into any home trouble, and they would certainly have thought it strange for a newspaper-reporter to be querying their son.

At first, Joe was reluctant to talk. He was about my son's own height, a year older, but he knew Ed and liked him. It didn't take me long to establish the fact that the two boys were a lot alike. They were both science-fiction fans, and that must be the ticket. After I had told him I was Ed's father, and that I just wanted to talk to him about the Space Grenadiers and about Frank, he seemed to warm up slightly.

It was obvious that the boy was cagey. He said there wasn't anything the matter. They were very serious about their club; they thought the TV serial was "swell;" they wanted to earn themselves special "Commander" cards in the organisation. He explained to me that you began as a cadet, that you filled out certain questionnaires about your science-knowledge, or else started a club, or did something special, and they would advance you to trooper, and then to grenadier, and finally to commander. He and Frank were in the Grenadier class. He admitted that he didn't know of anybody in the Commander class, and what had been exciting him was the possibility of being the first to make it, and therefore being mentioned on the TV programme.

But it was also obvious that he was concealing something from me. Several times he would start an answer, stop, rethink his sentence, and start over. He claimed he didn't know what caused Frank's breakdown. He claimed, after hesitation, that it must have been schoolwork.

I DIDN'T press the boy further. That evening I sat with Ed and watched the Space Grenadiers programme. It was exciting, interesting. It concerned the adventures of a handsome young man who was a captain in some future war against Martians, or Jovians, or something. Strictly the Buck Rogers-Flash Gordon technique, brought up to date with TV trappings and spectacular effects. Throughout it I was annoyed by constant flashes of light which seemed to keep on occurring in the background. Ed explained to me that these were supposed to be meteor flashes. "They go on all the time in space, pop," he said.

"They do, eh?" I answered. They almost gave me a headache, and I wondered how meteors could flash in airlessness. You have to allow television-producers a certain poetic license, I suppose.

On a hunch, the next day I went down to the city hospital again and checked their records. They had had six cases of breakdowns in the last four months involving boys between thirteen and seventeen. One was a case of a boy who had gone unconscious and remained in that state for almost a month, when he pulled out of it. He was still in the hospital, but they expected a full recovery. Two others were temporary amnesia cases. One had been removed to an asylum; two were dead.

As best I could, I checked up on each of these boys, those in the hospital, those released, those dead. In five of the six cases, the boy had been a member of the Space Grenadiers. The sixth case; I guess, may just have been accidental.

Now I was really worried. As a father, frightened, I went around to see Joe Aitkens again. I caught him

just home from school. This time I was not easy on the boy. I confronted him with the evidence. He admitted that he knew two of the mental cases, one of them a dead one. It was those two who had caused Frank and himself to redouble their efforts to build up the Space Grenadiers club, and led to their trouble with the Fantasy Legion.

I didn't see the connection. "Why did you pick on the Fantasy Legion members? Couldn't you just convince boys on the street?"

Joe looked away from me. "We needed recruits in a hurry, but they had to have the right outlook. They had to be a certain kind of imaginative guy, already active fans. We couldn't afford to wait."

I was getting a bit angry. This was deadly serious, and there was something damnably wrong here. I restrained my temper, became confidential. I explained to Joe that he should remember that boys of his age were not alone, that they could always call on the adult world for assistance, and if there was a real need for it, they would always be able to find understanding somewhere. I said that the Space Grenadiers programme was put out, written by, acted by adults. That if there was something fishy, it must be something that could be better handled by adults. Joe almost broke down and cried then; it was clear to me that he'd been carrying a heavy burden on his conscience—doubled since Frank's breakdown.

Finally he let loose. He told me about the Space Grenadiers and himself. I don't believe he expected me to believe him, but I did.

HED been watching the Space Grenadiers Hour ever since it started, which was about a year ago.

He was a real fan, never read anything save science fiction, had no friends other than fans. He said he believed in science fiction, by which he meant that he believed in space-flight, in other worlds and their inhabitants, in the reality of those things. Naturally the TV show was a source of great fascination, or near-reality.

"I started dreaming science-fiction about three months ago. I don't think I was aware of it for a while until I realised I had been having the same dream every night for a week. The dream was this:

"I would be standing by a port window in a spaceship. I knew it was a spaceship, in the way you know things in dreams. I would watch the stars, and I would watch the flickering meteor lights, and I saw all sorts of space-battles going on. There was a war in space, and I was watching it from a transport ship.

"I never could look around me; I never remember seeing the inside of the ship I was on. But I knew, like you do in dreams, what was around me. I knew I was standing in a crowd of guys like myself. I knew they were looking over my shoulder, jamming me in. I couldn't move, we were packed so tight. I knew we were recruits, waiting for our turn to go into battle."

Joe stopped, put a hand to his head, looked a little sick. I waited silently, sitting on a chair before him. I felt worried for him, worried for Ed, sort of frightened. After a moment, Joe continued.

"I had this same dream every night. It was always like that. There were battles going on, spaceships exploding, rays, and always meteor-flashes. And I was always pushed tightly against that port, surrounded by recruits, waiting, waiting to be called.

"This dream never stopped. It has been going on now for maybe three months. But I learned more. Gradually the pressure eased up. I realised that some of the men behind me were going off on duty. I realised that one night my call would be come soon."

"What sort of duty? What were you expected to do when you were called?" I asked softly.

Joe looked at me with pain in his eyes. He whispered slowly, "Kamikaze piloting. Space grenadiers for real. We were waiting to be sent out in atomic bomb-loaded rocket ships to crash them into enemy ships, or enemy planets. We were going to sacrifice ourselves, just like the Japanese suicide pilots did; that's what we were waiting for."

I sat back, cold chills down my spine. "Now wait a minute. You knew this; couldn't you do anything to stop it?"

Joe looked at me; now that he had stated his worry, he became frank. "Look, I talked it over with Frank. He had been having the same dream—the exact, same dream. We studied it, analysed it. We came to the same conclusion. We had to find substitutes. If we could convince them that we were good recruiting-agents, maybe they wouldn't send us out when our call came."

"They? Them? What do you mean? Who are you talking about?"

JOE swallowed. "Look, sir, you have got to understand. We couldn't be having the same dreams if there wasn't something real behind it. We knew about those guys who had the nervous breakdowns. There were some in other cities, too; we know from the fan magazines and correspondence. They were all Space Grenadiers. What Frank and I figured out was this:

"We decided that there is really a war going on somewhere in space. Not in this system, we don't think, because we could never identify any of the planets we saw in our dreams. Now, in this war, the people that are fighting it use recruits from other worlds—worlds they probably consider backward from their science-viewpoint, worlds like Earth. They don't seem to need us physically—maybe our bodies wouldn't survive—but they do need our minds. They need minds to direct these suicide, atomic-bomb rockets that they shoot at each other. The same as the Japanese Kamikazes, where a fellow would pilot his own bomb-loaded plane into a U.S. battleship, kill himself as a patriotic duty. Only these people don't feel like killing themselves if they can get someone else to do it.

"So this Space Grenadiers' programme is sort of backed by them, though I don't know how you could prove it. Maybe the guys that write and direct it are being moved by dreams or something; they probably don't know what they are doing. Anyway, we do know that certain fellows who watch it regularly start to dream this dream, and some of them come to a terrible end. We think, Frank and I, that when they get their breakdown, or go crazy, or drop dead, is the night they get their call and are sent out on a suicide mission. Maybe their brain can survive the shock; sometimes it does, most often it doesn't.

"But anyway, that's the way it works. Of course, it doesn't have that effect on most of its watchers. Maybe nothing happens to 99 per cent. of the kids that watch it; they need only certain kinds of minds, science-fiction minds, specially imaginative, like me and Frank and your

son, Ed. So that's when Frank figured out that if we would get the Fantasy Legion members here to become interested in the Space Grenadiers' programme, we'd be bringing Them a lot of special high-type recruits. Maybe then they'd let us go—or anyway figure we were of some real value to them.

"But it didn't work. Frank must have got his. . . ." and then Joe broke down and cried. He was scared through and through. I don't blame him; I'm scared through and through myself.

I don't know what you can do about it. I wrote to the T.V. station and I wrote to the cereal company that "sponsors" it, but I'm realist enough to know they aren't going to pay any attention to crank letters. I'm just a reporter on a newspaper; I don't have any special influence and I only have enough money to support my family—none to become a crusader.

I have disconnected my own T.V. set, and you can buy it from me cheap. If you want a good set in perfect condition, write me. But I won't sell it to you if you have any children.

THE END

If the name of any living person is used, it is coincidence.

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